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## FIELD MAINTENANCE PRINT SET

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FIELD MAINTENANCE PRINT SET  
PARTS LIST (SH414)  
159 MBYTE 5 1/4 DISK DRIVE  
159 MBYTE 5 1/4 DISK DRIVE  
159 MBYTE 5 1/4 DISK DRIVE

RD54  
**Field Maintenance  
Print Set**

**Digital Equipment  
Corporation**

Print Set Part Number MP- 02291

REVISION HISTORY			
REV.	ECO NUMBER	DATE	
A	KD INIT.	3/87	
B	RD54-SH001	6/87	
	R. HOPPERAL 18 JUN 87		JIM LUCAS
			John Jones

DRN. R. KOPPENAL	DATE 19-MARCH-87	TITLE  159 MBYTE 5 1/4 DISK DRIVE	digital
CHK'D. R. KOPPENAL	DATE 19-MARCH-87		
DES. ENGL. JIM LUCAS	DATE 19-MARCH-87		
RESP. ENGL. DEAN HOWELL	DATE 19-MARCH-87		
FIELD SERVICE R. MINISANDRAM	DATE 19-MARCH-87	DOCUMENT NUMBER NUMBER RD54-0 REV. B	
TOP DOC. NO.		SHEET 1 OF 1	

P A R T S      L I S T

SHEET A1 OF A1

QUANTITY PER VARIATION/REVISION

LINE ITEM	TOP DOCUMENT	PART NUMBER	REV	DESCRIPTION	QUANTITY PER VARIATION/REVISION	
					A	EA
					C4	C4
1	1	30-26245-01		DISK DRIVE,W/SLD PLATE,MT SCREW,GR	1	-
2	2	29-26103-00		B1DEVICE PCB (RD54)	1	1
3	3	90-00049-66		SCREW,SEMS PAN PHIL EXT WSH 4-40	4	4
4	4	90-09414-02		SCREW,MACH FLAT PHIL 4-40	4	4
5	D-MD-7425652-0-DBU	74-25652-01		PLATE,SKID	1	-
6	D-MD-7428201-0-DBU	74-28201-01		CLIP,GROUNDING	1	-
7		12-14314-00		CONN,P+S 02SKT(1X02).100CC JUMPE	1	1
8		90-06021-01		SCREW,MACH PAN PHIL 6-32	4	-
9		30-26245-02		DISK DRIVE,W/SLD PLATE SCREW,GRN	-	1

REVISION HISTORY			KPL MATRIX FORMAT	SECTION	A OF A	DRN:	R. KOPPENAL		D	I	G	I	T	A	L
ENG!	ECO NUMBER	REV	SECTION/VARIATION INDEX				DATE: 23-OCT-86								
			[A]	A ,EA			CHK'D: R. KOPPENAL		TITLE PARTS LIST						
-- INITIAL	J.L RD54-SH001	A	[B]				DATE: 19-MAR-87		159 MBYTE 5 1/4"						
D.H RD54-SH002		C	[C]				DES.ENG: JAMES LUCAS		DISK DRIVE						
			[D]				DATE: 19-MAR-87		DOCUMENT NUMBER						
			[E]						SIZE	CODE	NUMBER		REV		
			[F]				RESP.ENG.: DEAN HOWELL								
			[H]				DATE: 19-MAR-87		K	PL	RD54-0-DBP		C		
			[J]												
							MFG.ENG: R.MINISANDRAM		RELEASE DATE: 19-JUL-88						
							DATE: 19-MAR-87		RELEASE STATUS: RELEASED						
			BASIC PART NUMBER: RD54			ASSEMBLY NUMBER: !			TOP DOCUMENT NUMBER: !B-TC-RD54-0			EDIT # 2			
			FILE NAME: SH414C.PLS			!			!			!			

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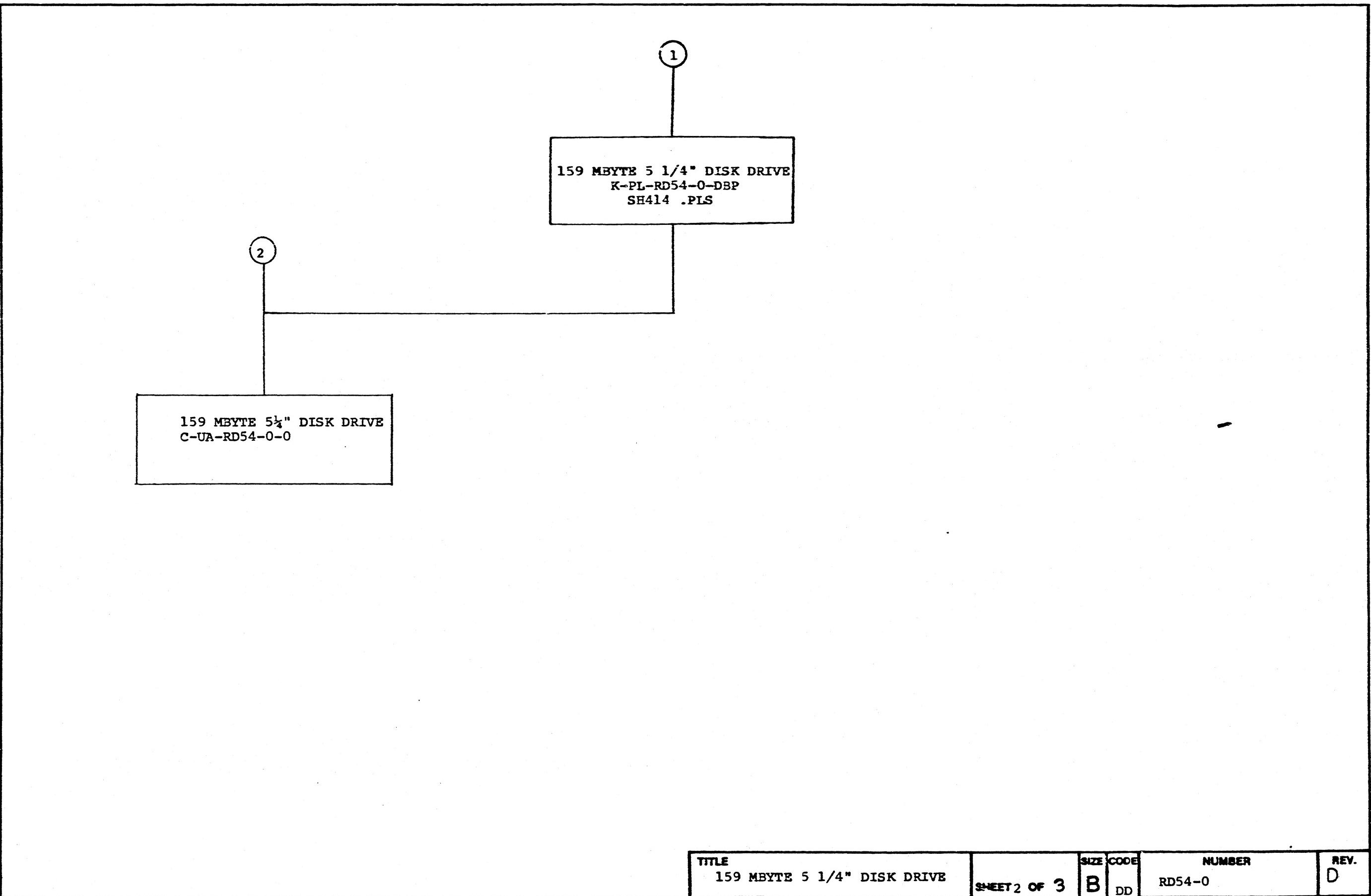
DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS												
		RD54-A	159 MBYTE 5½" DISK DRIVE	A1	-	B1	C1	C2	C3	C4	C4					
		RD54-EA	159 MBYTE 5½" DISK DRIVE	-	A1	B1	C1	C2	C3	C4	C4					
B-TC-RD54-0	1		FIELD MAINTENANCE PRINT SET	B	B	C	C	C	C	C	C					
K-PL-RD54-0-DBP	1		PARTS LIST (SH414)	B	B	C	C	C	C	C	C					
D-MD-7428201-0-DBU	1	7428201-01	CLIP, GROUND	REF	REF	REF	REF	REF	REF	REF	REF					
D-MD-7425652-0-DBU	1	7425652-01	PLATE, SKID	REF	REF	REF	REF	REF	REF	REF	REF					
C-UA-RD54-0-0	1		159 MBYTE 5½" DISK DRIVE	B	B	B	B	B	B	B	B					
K-RM-RD54-0-0	4		REVISION MATRIX	B	B	C	C	C	C	C	D					
<b>NOTES:</b>																
				REVISION HISTORY												
				DATE	ECO NO.	REV.										
				6/87	SH001	B										
				6/87	SH001	B										
				7/88	SH002	C										
				7/88	SH002	C										
				7/88	SH002	C										
				7/88	SH002	C										
				7/88	SH002	C										
				11/88	SH003	D										
				DRA. C. ASSADOURIAN			DATE 17-JUN-87			TITLE			159 MBYTE 5½" DISK DRIVE			
				CHK'D R. KOPPENAL			DATE 17-JUN-87			DOCUMENT NUMBER			NUMBER RD54-0			
				DES. ENG. JIM LUCAS			DATE 17-JUN-87			REV D			SIZE B CODE DD			
				RESP. ENG. D. HOWELL			DATE 17-JUN-87			SHEET 1 OF 3			MFG. ENG. BOB BARBOUR			
				DATE 17-JUN-87			SHEET 1 OF 3			SHEET 1 OF 3			SHEET 1 OF 3			

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**digital**

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DRN. <b>C. ASSADOURIAN</b>	DATE <b>17-JUN-87</b>	TITLE <b>159 MBYTE 5 1/4" DISK DRIVE</b>		
CHK'D <b>R. KOPPENAL</b>	DATE <b>17-JUN-87</b>			
DES. ENG. <b>JIM LUCAS</b>	DATE <b>17-JUN-87</b>	DOCUMENT NUMBER		
RESP. ENG. <b>D. HOWELL</b>	DATE <b>17-JUN-87</b>	SIZE <b>B</b>	CODE <b>DD</b>	NUMBER <b>RD54-0</b>
MFG. ENG. <b>BOB BARBOUR</b>	DATE <b>17-JUN-87</b>			SHEET <b>1</b> OF <b>3</b>



TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV.
159 MBYTE 5 1/4" DISK DRIVE	B DD		RD54-0	D

TYPE: E ELECTRICAL  
M MECHANICAL  
E/M ELECTRO/MECHANICAL

**digital**

**TITLE**  
**159 MBYTE 5 1/4" DISK DRIVE**

SHEET 3 OF 3

SIZE	CODE
B	DD

NUMBER  
RD54-0

REV  
D

OPTION NAME: RD54-A  
159 MB (FORMATTED) 5 1/4" INCH  
WINCHESTER DISK DRIVE

## INFORMATION SHEET

### RM ECO #

### NOTES:

RD54-SH001

1. CREATED EA VARIATION (WITHOUT SKID PLATE/GROUND CLIP 4-87).
2. THE USE OF P/N 74-25652-02 (SKID PLATE) IS OPTIONAL.

RD54-SH002

UPDATED THIS REVISION MATRIX AND DOCUMENTED MINIMUM SHIPPABLE REVISIONS OF THE DRIVE AND DEVICE PCB.  
SEE NOTES 3 THROUGH 7.

3. USE CAUTION WHEN ANALYZING DRIVE REVISION LEVELS. IN ORDER TO BRING RD54 AND THIS REVISION MATRIX INTO CONFORMANCE WITH THE CURRENT DEC STANDARD 12 MANY DRIVE REVISION LEVELS HAVE BEEN REASSIGNED AND SHOWN ON THE TOP LINE AS TO WHAT THEY SHOULD BE. AS A RESULT REVISION LEVELS MARKED ON THE DRIVE MAY OR MAY NOT REFLECT THE ACTUAL HARDWARE REVISION AS DEFINED BY THIS DOCUMENT. TO ASSIST IN ANALYZING DRIVE REVISION LEVELS, REVISION LEVELS WHICH WERE ORIGINALLY MARKED ON THE DRIVE ARE INCLUDED IN PARENTHESES UNDERNEATH WHAT SHOULD HAVE BEEN THE CORRECT REVISION LEVELS FOR RD54. THE REVISION LEVEL IN PARENTHESES IS THE REVISION LEVEL YOU WILL FIND ON THE RD54 BAR CODE LABEL UNLESS THE DRIVE HAS BEEN REMARKED DURING REPAIR.

4. THE CHANGE IN RD54 REVISION LEVEL FROM A1 TO B1 REFLECTS A CHANGE IN THE COATING ON THE HDA BASE CASTING FROM ZINC CHROMATE TO ELECTROLESS NICKEL.  
DRIVE REVISIONS A1 AND B1 ARE FUNCTIONALLY EQUIVALENT. THE ALPHA CHARACTER SHOULD NOT HAVE BEEN INCREMENTED WHEN THIS CHANGE WAS MADE. SINCE BOTH HDA'S HAVE A SIMILAR APPEARANCE, THE EASIEST WAY TO IDENTIFY HDA'S WITH THE OLD ZINC CHROMATE COATING IS BY THE DRIVE REVISION MARKING.  
DRIVES WITH THE "OLD" HDA (ZINC CHROMATE COATING) WERE ORIGINALLY MARKED A1 AND MAY HAVE BEEN REMARKED WITH C1 OR C3 PER THIS DOCUMENT DURING REPAIR.

5. THE CHANGE IN 29-26103 ALPHA REVISION FROM A TO B ADDS A 2.32 K 1% RESISTOR AT R61 IN PARALLEL WITH THE EXISTING RESISTOR AT R61. THE RESISTOR ADD IS REFLECTED FOR VENDOR PART NUMBER 1059085 BY A -22 FOLLOWING THE VENDOR ALPHA REV. LEVEL. POSSIBLE REVISIONS FOR VENDOR PART NUMBER 1059085 WITH THE RESISTOR ADD ARE C-22, D-22, F-22, AND H-22. SIMILARLY, THE CHANGE IN 29-81306-00 ALPHA REVISION FROM A TO B ADDS A 2.32 K 1% RESISTOR AT R61 IN PARALLEL WITH THE EXISTING RESISTOR AT R61. FOR VENDOR PART NUMBER 1059055 THE RESISTOR ADD IS INDICATED BY A -23 FOLLOWING THE VENDOR ALPHA REV. LEVEL. POSSIBLE VENDOR REVISIONS FOR VENDOR PART NUMBER 1059055 ARE J-23, K-23, L-23 AND M-23. THE -22 OR -23 WILL BE MARKED ON THE J3 POWER CONNECTOR OR THE U43 (40 PIN DIP) CHIP. THIS RESISTOR ADD ADDRESSES A PROBLEM WHERE RD54 INTERMITTENTLY FAILS TO SIZE CORRECTLY DURING A FORMAT OPERATION ON VAXSTATION 2000 AND MICROVAX 2000.

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1987

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DRN.	R.KOPPENAL	DATE	TITLE : REVISION MATRIX		
CHKD.	R.KOPPENAL	DATE	DOCUMENT		
DES. ENG.	DEAN HOWELL	DATE	DOCUMENTATION NUMBER		
RESP. ENG.	DEAN HOWELL	DATE	SIZE	CODE	NUMBER
MFG. ENG.	JOHN MURRY	DATE	K	RM	RD54-0-0
					REV. D
					SHEET 1 OF 4

OPTION NAME : RD54-A  
159 MB (FORMATTED) 5 1/4" INCH  
WINCHESTER DISK DRIVE

## INFORMATION SHEET

RM ECO #	NOTES :
RD54-SH003	<p>6. THERE ARE TWO PART NUMBERS FOR THE RD54 DEVICE PCB, 29-26103 (VENDOR PART 1059085) AND 29-81306 (VENDOR PART 1059055). ALL VENDOR PART NUMBER 1059085 (DEC 29-26103) WITH A -22 FOLLOWING THE VENDOR ALPHA REV. LEVEL AND ALL VENDOR PART NUMBER 1059055 (DEC 29-81306) WITH A -23 FOLLOWING THE VENDOR ALPHA REV. LEVEL ARE FUNCTIONALLY EQUIVALENT AND BOTH ARE AT DEC REVISION LEVEL B. THE VARIOUS DEC NUMERICAL REVISIONS OF THESE TWO PART NUMBERS REFLECT VENDOR ECO'S WHICH HAVE NO FUNCTIONAL IMPACT ON RD54. THE DEC NUMERICAL REVISION LEVELS (A01 THROUGH A08 AND B01 THROUGH B08) WERE INCREMENTED IN THESE CASES FOR TRACKING PURPOSES ONLY AND ARE NOT MARKED ON THE MODULE. ONLY THE ALPHA REVISION LEVEL CHARACTER IMPACTS FUNCTIONALITY.</p> <p>7. THE CHANGE IN 29-26103 REVISION TO B09 INCORPORATED THE RESISTOR ADD AT R61 INTO A SINGLE RESISTOR AND ADDED HEAT SINKS TO THE SPINDLE MOTOR FETS PER MAXTOR EC 886. VENDOR PART NUMBER 1059085 TOP REVISION WENT FROM REV. H-22 TO REV. J TO REFLECT THIS CHANGE. THESE CHANGES WERE NOT IMPLEMENTED ON VENDOR PART NUMBER 1059055 (DEC PART 29-81306).</p> <p>THE MINIMUM SHIPPABLE REVISION OF DEC PART 29-26103 IS B01. NO DEC REVISION LEVELS ARE MARKED ON THIS BOARD. THE DEC B01 REVISION LEVEL MUST BE IDENTIFIED BY LOOKING FOR A -22 FOLLOWING THE VENDOR ALPHA REVISION LEVEL. (SEE NOTES 5 AND 6)</p> <p>THE MINIMUM SHIPPABLE REVISION OF DEC PART 29-81306 IS B05. NO DEC REVISION LEVELS ARE MARKED ON THIS BOARD. THE DEC B05 REVISION LEVEL MUST BE IDENTIFIED BY LOOKING FOR A -23 FOLLOWING THE VENDOR ALPHA REVISION LEVEL. (SEE NOTES 5 AND 6)</p> <p>THE MINIMUM SHIPPABLE REVISION OF THE RD54-EA AND RD54-A DRIVE IS C1. (SEE NOTE 3)</p> <p>8. THE CHANGE TO DEC P/N 29-26103 TO A B10 INCORPORATED A RESISTOR VALUE CHANGE (R44 FROM 681 OHMS TO 3.01K OHMS). THE REMOVAL OF C17 AND ADDITION OF A 47uh COIL PER VENDOR ECO #1067. THIS CHANGE IS AN ENHANCEMENT TO THE SERVO READ CIRCUIT AND POWER LINES TO IMPROVE COMMON-MODE REJECTION OF SYSTEM NOISE. THESE CHANGES WERE NOT IMPLEMENTED ON VENDOR P/N 1059055 (DEC PART NUMBER 29-81306).</p>

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		CHKD.	R. KOPPENAL	DATE	DOCUMENT		
		DES. ENG.	DEAN HOWELL	DATE	DOCUMENTATION NUMBER		
		RESP. ENG.	DEAN HOWELL	DATE	K	CODE	NUMBER
		MFG. ENG.	JOHN MURRY	DATE	RD54-0-0		REV. D
					SHEET 2 OF 4		

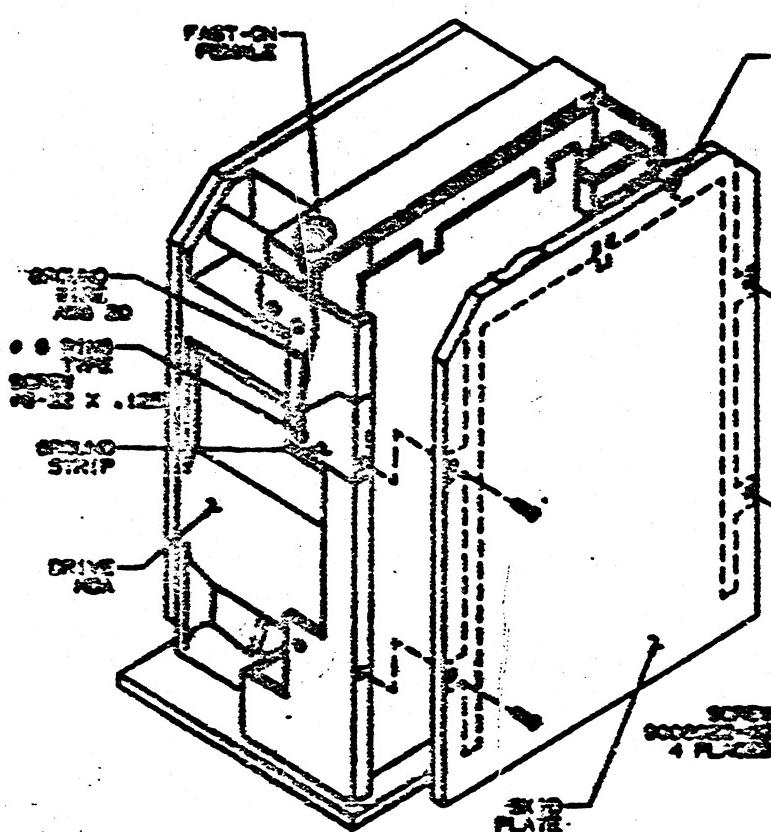


OPTION NAME:		R054-EA 159 MB (FORMATTED) 5 1/4" INCH (ORIGINALLY MARKED / SEE NOTE 3)		REVISIONS												
PART NO.		DESCRIPTION		A1 (A1)	B1 (B1)	C1 (A1)	C2 (B1)	C3 (A1)	C4 (B2)	C3 (A1)	C4 (B2)					
30-26245-01 2190		190 MB WINCHESTER DISK DRIVE MAXTOR P/N (VENDOR P/N)		A1	B1	C1	C2	C3	C4	C3	C4					
NO DEC PART * VPN 1050454 or VPN 1011549		MAXTOR HDA ASSY. (SEE NOTE 4)		OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW					
29-26103-00 1059085 29-81306-00 (1059055)		DEVICE PCB (SEE NOTE 5,6,7) MAXTOR P/N (VENDOR P/N) DEVICE PCB (ALTERNATE PART) * ALTERNATE VENDOR P/N 1059085		A01,A02 A03,A04  C,D,F,H A05,A06 A07,A08  J,K,L,M	A01,A02 A03,A04  C,D,F,H A05,A06 A07,A08  J,K,L,M	B01,B02 B03,B04  -22 B05,B06 B07,B08  -23	B01,B02 B03,B04  -22 B05,B06 B07,B08  -23	B09	B09	B09, B10 J,K	B09, B10 J,K					
12-14314-00		JUMPER PLUG		A1	A1	A1	A1	A1	A1	A1	A1	A1	A1			
37-00916-01		SINGLE PACKAGE		A1	A1	A1	A1	A1	A1	A1	A1	A1	A1			
90-00049-66		SCREW SEMS PAN HD 4-40 X .250		A1	A1	A1	A1	A1	A1	A1	A1	A1	A1			
90-09414-03		SCREW PHL FLAT HD 4-40 X 3/16		A1	A1	A1	A1	A1	A1	A1	A1	A1	A1	-		
<b>NOTES:</b>																
REVISION MATRIX (TOP LEVEL AND COMPATIBILITY)				REVISION HISTORY	ECO NO											
				DATE	SH002	SH002	SH002	SH002	SH002	SH002	SH002	SH003	SH003			
				7/88		7/88	7/88	7/88	7/88	7/88	7/88	11/88	11/88			

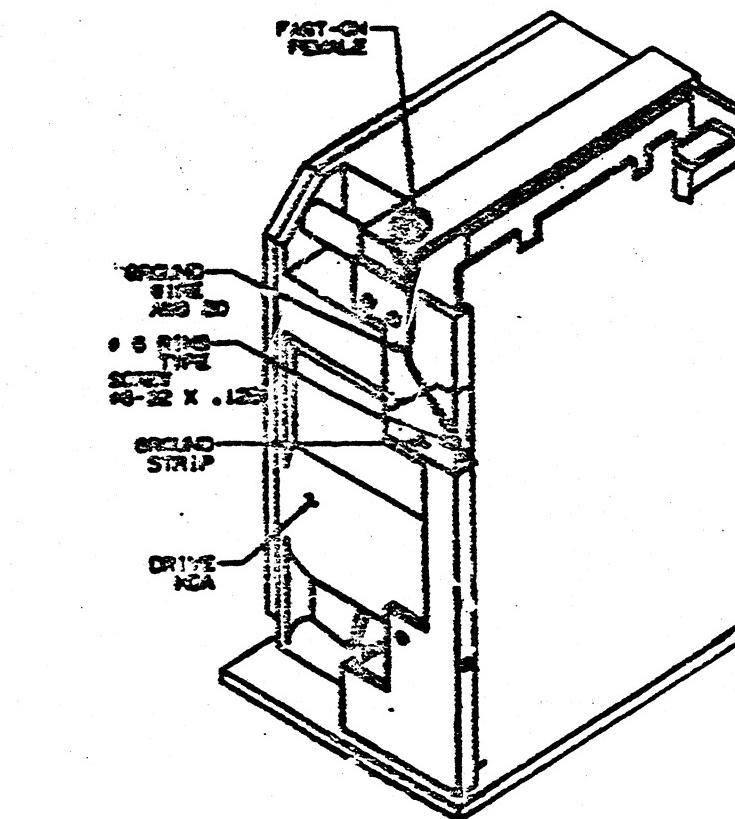
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1987

SIZE	C	CODE	CUA
NUMBER	RD54-0-0	REV	A



RD54-A



RD54-EA

SIZE	C	NUMBER	RD54-0-0	REV	A
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REVISION HISTORY		
REV	ECO NUMBER	DATE
A	INIT	4/1/1987

	DESCRIPTION		DRAWING NO	PART NO	ITEM NO	
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND THE FOLLOWING TOLERANCES APPLY (PER DEC STD 114)					
QUANTITY & VARIATION	INCHES TOLERANCES	ANGLES ± 0° 30'	DIMENSIONS RANGE IN INCHES			
	X - ± .1	✓ SURFACE QUALITY	OVER 0 TO .02	OVER .2 TO .2	OVER .4 TO .4	
	XX - ± .02	MICRORHES	± .004	± .008	± .012	
THIRD ANGLE PROJECTION		R. KOPPENAL	17 JUN 87	TITLE digital		
DO NOT SCALE DRAWING		R. KOPPENAL	17 JUN 87	159 MBYTE 5 1/4"		
REMOVE BURRS AND BREAK SHARP CORNERS		JIM LUCAS	17 JUN 87	DISK DRIVE		
MATERIAL		D. HOWELL	17 JUN 87	DOCUMENT NUMBER		
FINISH		B. BARBOUR	17 JUN 87	CODE CUA	RD54-0-0	
TOP DOC NO B-DD-RD54-0		REV A		WEEK 1	*	